United States Department of Agriculture
Research, Education and Economics
Agricultural Research Service
South Atlantic Area

December 28, 2004

Ms. Dorothy Shimer
Research Division
Air Resources Board
P.O. Box 2815
Sacramento, California 95812

Dear Ms. Shimer:

Thank you for the invitation to respond to the *Draft (For Peer Review November 2004) Report to the California Legislature, Indoor Air Pollution in California* in response to Assembly Bill 1173. The report (section 2.1.3) states a major objection to the use of d-limonene and other terpenes in cleaning products as not due to the terpenes themselves, but to reaction products formed between terpenes reacting with ozone and nitrogen oxides present in smog. These are components which cause irritation without any d-limonene or other terpenes being present. Before d-limonene and other terpenes are banned from use in California, a realistic evaluation should be conducted to determine actual levels of irritants formed from limonene and if better and more effective alternatives for cleaning chemicals that are safer to use actually exist. It would seem more prudent to eliminate the ozone, nitrogen oxides and other components in smog which are the real problem. The citrus processing industry is a major producer of d-limonene, a by-product of citrus processing. Citrus terpenes and d-limonene have been leading the way as replacements for known toxic chemicals for over 40 years and it's continued use actually addresses many safety issues outlined in your report. The Food and Drug Association and Federal Emergency Management Association both list d-limonene as a GRAS or "generally recognized as safe" product. It is not listed on California's Prop. 65 toxic substance list, or on the Environmental Protection Agency's Chemical and Regulatory Rules list where chemicals the EPA considers to pose a health or environmental risk are placed. It is also not considered a hazardous waste material by EPA. The National Toxicology Program, Occupational Safety and Health Administration, and the International Agency for Research in Cancer do not have d-limonene listed as chemical they consider to be carcinogenic to humans. Elimination of d-limonene as a chemical in cleaning formulations could also have a serious impact on the citrus processing, an industry that increasing relies on by-product sales to maintain a profit.

Sincerely;

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